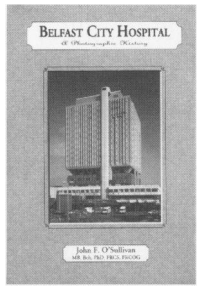
Ulster Med J 2005; **74 (2)** 140-141

Book Reviews

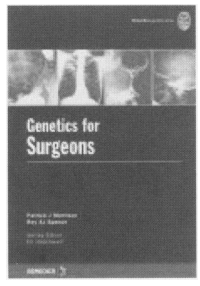


Belfast City Hospital A Photographic History: John F O'Sullivan. Ballyhay Books, 2003. ISBN 1 900935 32 5. £8.99.

This book aims to trace the development of the hospital from Workhouse to Tower Block and consists essentially of photographs and plans of the whole site down the years, with descriptive text. The result is a re-creation of the hospital which reveals much more than bare words. For instance, the enormous amount of space surrounding it is shown in the photograph including five acres of cabbages. On the other hand, the overcrowding of the childrens' wards is also shown even if we don't see them lying three in a bed! The conditions of the past were not all bad, of course, and the forbidding black of the main hospital was balanced by the friendliness of coal fires in many of the wards. The book covers the range of buildings on the site, from the elegant little 1850 Porter' Lodge at the front to the twentieth century Ava building at the rear. It also has a few "outliers" such as the Intercepting Hospital on the West Twin Island for short-term accommodation of fever patients, and the Pavilion at Whiteabbey Hospital, reminding us that the Poor Law Guardians also had a responsibility for treating tuberculosis in the city of Belfast. Apart from the buildings, the photographs remind us of the social changes since the days when nurses could enjoy a game of tennis on the site or stir the Christmas pudding.

Altogether the book shows the changes which have occurred since the opening of "a workhouse for the able-bodied destitute" in 1839 and is a nostalgic reminder that the City Hospital in which older doctors worked has almost totally gone.

RICHARD SJ CLARKE



Genetics for Surgeons: Patrick J Morrison, Roy AJ Spence. Series Editor: Eli Hatchwell. Remedica Medical Education and Publishing. www.remedica.com ISBN 1901346692 £20 (€30) 2005.

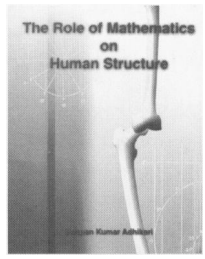
This book is one of a series entitled the "Genetics for... Series", each written for a particular specialty. The aim is to bring doctors up to date with recent advances in molecular biology in both a general way and also in a specific way relevant to each specialty.

A general overview of the principles in genetics is followed by an excellent section on common surgical conditions with a hereditary tendency. The level of detail is such that it will serve well as a reference text or for use as a teaching aid. Section three deals with familial cancers with particular emphasis on breast, ovarian and colon cancer. A further section addresses topics that both surgeons and anaesthetists should know and finally a comprehensive glossary provides a very useful reference for a large number of genetic terms now in every day use.

The authors have managed to present a huge amount of information in a very accessible way that makes this a very readable book. The level of detail means that it can be used both as an aid to patient management and by examination candidates. The educational aspect is greatly added to by a list of highly recommended websites and a further reading list mainly dealing with hereditary cancers.

I would recommend this book to practicing consultants needing a comprehensive yet non technical resource, dealing with what can be a daunting subject for many. However the book contains all the necessary guides for further more detailed research if this were needed in specific areas. For the exam candidate there is excellent sections on general aspects of clinical and laboratory genetics and more than adequate coverage of the common hereditary cancers.

SEAMUS DOLAN



The Role of Mathematics on Human Structure: Swapan Kumar Adhikari. Dipali Publications, India, p.155. ISBN 81-901643-0-9 2003.

It is sometimes stated that "medicine is an art, not a science". Such a simplistic dismissal is obviously more cliché than fact; it is perhaps less obvious that science itself relies on hefty doses of what might be termed "art". Creative thinking underpins most of the great advances in science in general and medicine in particular: Einstein's general theory of relativity, Knudson's two-hit oncogenesis hypothesis, Harvey's conception of the circulation of the blood, Darwin's theory of evolution - all owe their origins to their discoverers' ability to think outside the constraints of received dogma or prevailing opinion.

Medical mathematics has a long and (mostly) noble history. From the early efforts of the Ancient Egyptians to systematise the representation of the human form to the modern triumphs of bioinformatics and medical statistics, the tale is one of inexorable progress. It has, however, been tinged with outright error, fraud and cynical attempts to use the spurious precision of mathematical analysis to promote an ideological political agenda. Mathematics is easy to misapply; we may feel it is telling us one thing, when in fact it is telling us something completely different. In this respect, we are at the mercy of our theories. The measurement of racial characteristics which was so fashionable in the early years of the 20th century was interpreted through the lens of a racial evolutionary theory that would have made Darwin cringe. The human species was felt to be culturally and anthropometrically divisible into discrete "races" of varying worth or advancement, with (of course) white northern Europeans at the top of the heap. The findings of modern genetics (and simple common sense) have been able to emphatically confine such notions to the same scientific dustbin as creationism and flat-earthism. We are (biologically at least) a very unified species, and there is substantially more variation within "races" than there is between them.

Adhikari's book is entitled: "The Role of Mathematics on [sic] Human Structure". This might lead the reader to expect a review of the history of mathematical treatment of the human form, and, indeed, a brief flick through the pages will turn up such luminaries as Descartes and da Vinci. However, hopeful expectation is not fulfilled. Adhikari presents a series of papers (preceded by very brief abstracts) apparently intended to demonstrate how some pure mathematical principles may be applied to the human organism. The first paper is essentially a brief distillation of the life of Leonardo da Vinci, with allusion to his work on the mathematics of anatomy. I was surprised to find no mention of Leonardo's most iconic anatomical work: the Vitruvian Man (penned in around 1490). This is surely the supreme example of the mathematicisation of anatomy, although it is more a depiction of Leonardo's mathematical "ideal", rather than evidence of any fundamental insight into real human biology. Leonardo derived his picture from the canon of proportions set down by the Roman architect Vitruvius in the 1st century BCE. The "perfect man" stands in two superimposed poses, enclosed in a square, defined by the equality of his height and armspan. In the first pose, his legs are straight, and arms outstretched. In the second pose, he stands in a circle, centred on his navel, with a radius defined by the distance from the navel to the end of his spread-out legs. The arms in this pose are shown elevated to the same height as the top of the head, and the middle finger meets the circumference of the circle. All fits neatly within a clearly-defined mathematical structure. I don't know if I've ever met anyone who would actually fit precisely into such a scheme, but its power as an image is undiminished.

Adhikari correctly identifies some of the key engineering aspects of the human skeleton, and presents a host of complex equations to describe them. These do not, however, help to explain things (other than in a very general and purely post-hoc sense), nor do they elucidate any non-obvious "role" mathematics might play in treating their pathology. Where the lid really flips is in discussion of the pineal gland - favoured organ of Descartes. Adhikari garners numerous equations in an apparent attempt to explain something about this enigmatic little brain structure, but nowhere tells us what it is, or what it does. Its location is described, but in highly technical neuroanatomical terms lifted straight from an old 1989 edition of Gray's Anatomy. Adhikari bemoans the fact that modern neuroanatomy has demolished Descartes' claim that the pineal is the "origin" of the brain, while it has apparently failed to declare an alternative location. However, the need for such an "origin" in the first place is not clear; the brain is a complex system, and does not have one single controlling centre. There is no "seat of the soul".

The chapter on the heart is no more uplifting. Various equations are again pressed into service and littered with diagrams lifted from Gray's, and of debatable relevance to the text. Chemical explanations of myoglobin and haemoglobin are impenetrable, and (in several cases) factually inaccurate. In one section, the term "neoplastic" is defined as "repairing by plastic surgery or infectious disorders or Latrogenic [sic], Neurosis or Physical disorders"! And so it continues, with little in the way of a thematic thread to bind the whole confused mess together. The text is crammed with spelling and grammatical errors, and is poorly and inconsistently referenced. It is often difficult to tell where quotes end and the author's interpretation begins. The readability of the text is further hampered by inappropriate capitalisation, as well as lengthy parenthesisations, where footnotes would have been more appropriate.

But what of mathematics itself? It seems odd that a book which purports to exalt the role of mathematics in medicine and anatomy should miss some of its most beautiful and elegant applications. There is no mention of that most iconic mathematico-molecular image in medicine - the double-helix of DNA. Similarly, the discipline of bioinformatics is not mentioned, nor is the burgeoning field of the application of supercomputing resources to medical problems. The whole area of medical statistics is ignored. For a book published in 2003, this is puzzling to say the least.

Adhikari is right about one thing: the understanding of human biology can be dramatically enhanced by the application of mathematical knowledge. Having said that, people are not simply equations (or if they are, they're very complex ones). Our mathematical descriptions are approximations to the real situation at best. But, given that we have all these mathematical insights into the function of the human organism, it would, presumably, be appropriate to enquire as to the source of this supreme mathematical order. The discovery of the mechanism of evolution is arguably the most important biological discovery in history. Evolution is alluded to, but largely glossed over. This is a pity, because it offers an extremely rich vein of mathematical application. Theodosius Dobzhansky famously remarked that "nothing in biology makes sense, except in the light of evolution". Unfortunately, very little in Adhikari's book makes sense at all.

SHANE McKEE